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Deconstruction

Rolex

Submariner

(Manufactured in 2014)

by

THE NAKED WATCHMAKER

Images from www.thenakedwatchmaker.com

Edition R01b

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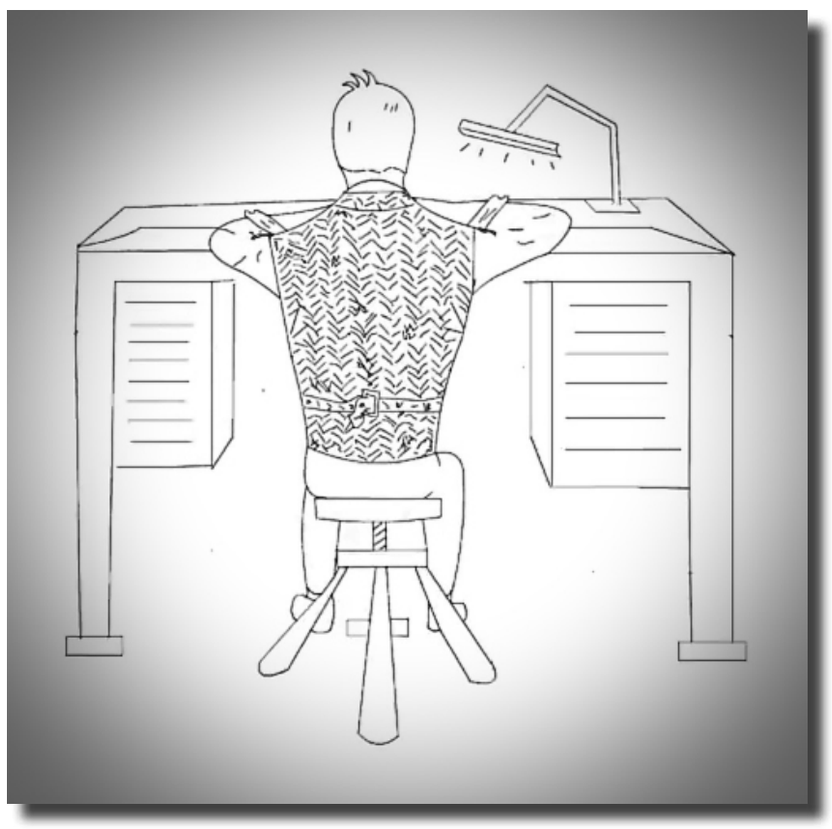
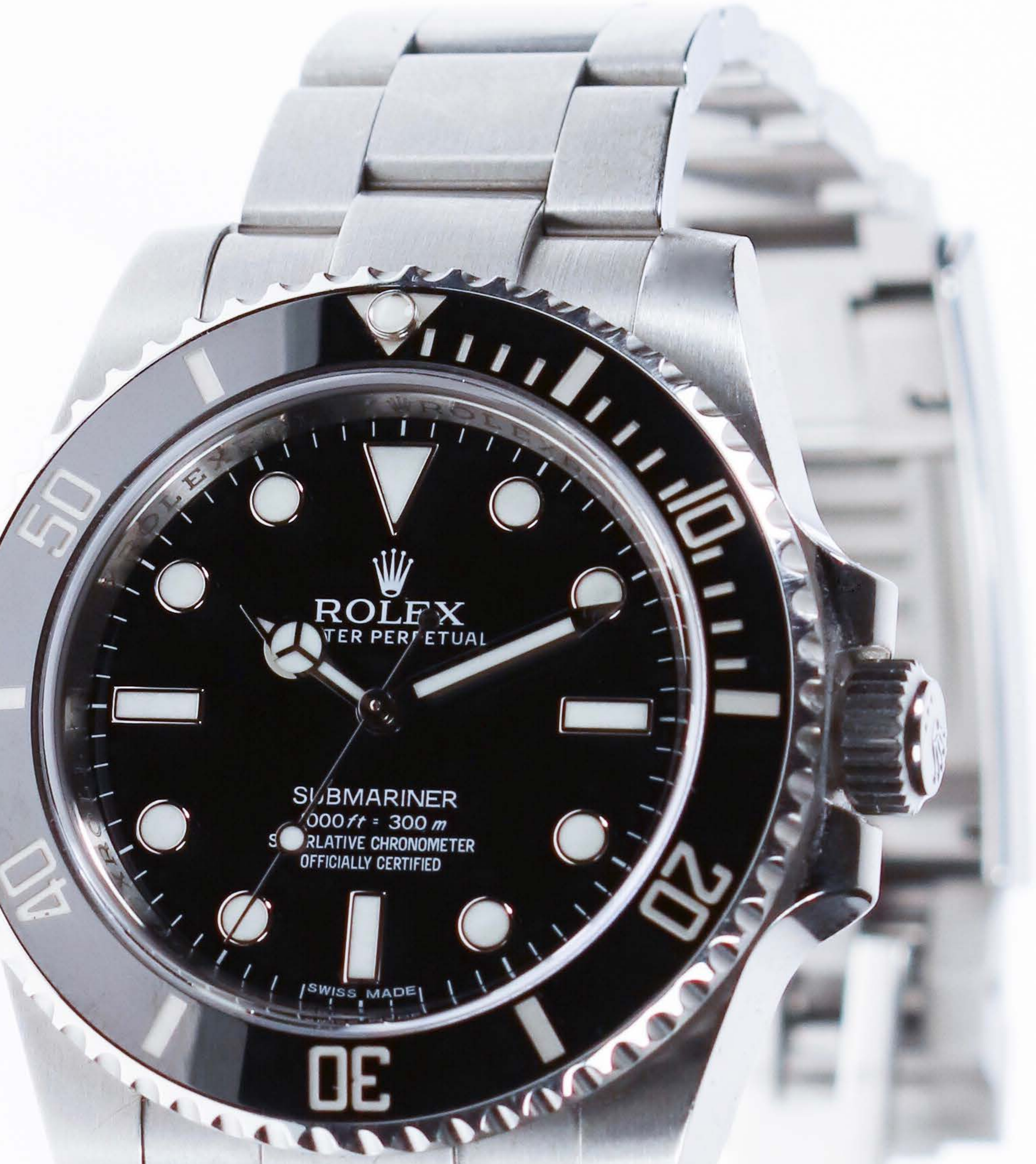
laptops and tablets.



Rolex was founded by Hans Wilsdorf and Alfred Davis in London, England in 1905. It moved its base of operations to Geneva, Switzerland in 1919.

The Rolex Submariner

Originally designed in 1953 is one of the most iconic of the Rolex models, and of all wristwatches ever made.



The Submariner photographed has been worn consistently since 2014, the case is both tarnished and tarnished as a result.

The case back is screwed in place by a specific tool which follows the form of the serated pattern. (Personalised signature and logo by Rolex for the client).

The steel around the winding crown is raised as a form of protection against impacts.

The winding crown unscrewed into winding position.

The bezel is uni-directional, only rotating anti-clockwise.

The first views of the movement once the case back is removed.

The arrows point to the two sides of the setting lever which holds in place the stem, and when pulled by the stem places the watch in winding position. To remove the stem one pushes the visible button shown here to the left.

The above image shows a casing screw securing the movement tight in place by pushing against a ledge of the case side. In the lower image the screw has been tighted down freeing the movement which is rotated to a cut-out allowing the movement to be removed from the case. For the movement to be rotated to this position the stem has already been removed.

Once the movement is removed from the case, the movement casing screw is in essence screwed tightly against the mainplate. When the movement is returned to the case and rotated to its correct position, the screw is effectivey undone which then pushes against the inner rim of the case holding the movement tight in place. The system is one of the most simple and elegant solutions for securing a movement in a case.

The winding crown tube which the crown is screwed down upon, is itself tightly screwed and loctited in place using a star shaped key which is fitted to the inside of the tube so as not to damage the outer thread. In addition to the loctite there is a small circular lead seal placed between the tube and the case which adds an additional security against water entering the watch. There are two rubber seals on the inside of the tube as well as an additional one on the outside.

The winding stem with winding crown removed from the case and movement. Built into the winding crown is a clutch system which allows the crown to ‘idle’ when pushed down so as not to wind the calibre. When released it locks into place allowing the watch to be either wound manually or when placed in setting position to adjust the hands. The clutch sytsem needs to be slightly stronger than the setting lever spring system so as to ensure that the setting is retuned to winding when the crown is pushed back into place.

In the inner base of the winding crown is a further seal which pushes against the top of the crown tube to add an additional seal for water resistance.

The Rolex Triplock winding crown
comprising of ten different components.

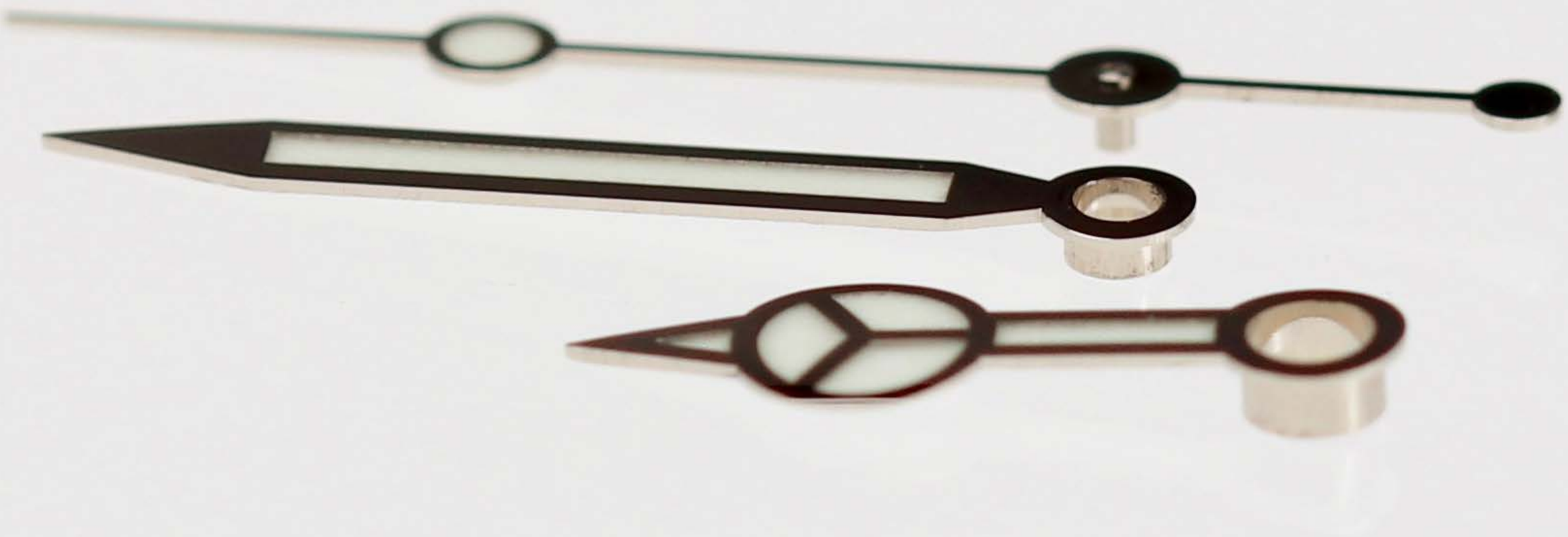
Once the movement is removed
from the case the stem is then
returned to the movement before
it is dismanetelled.

The dial is held in place by two screws which are located laterally on the side of the movement.

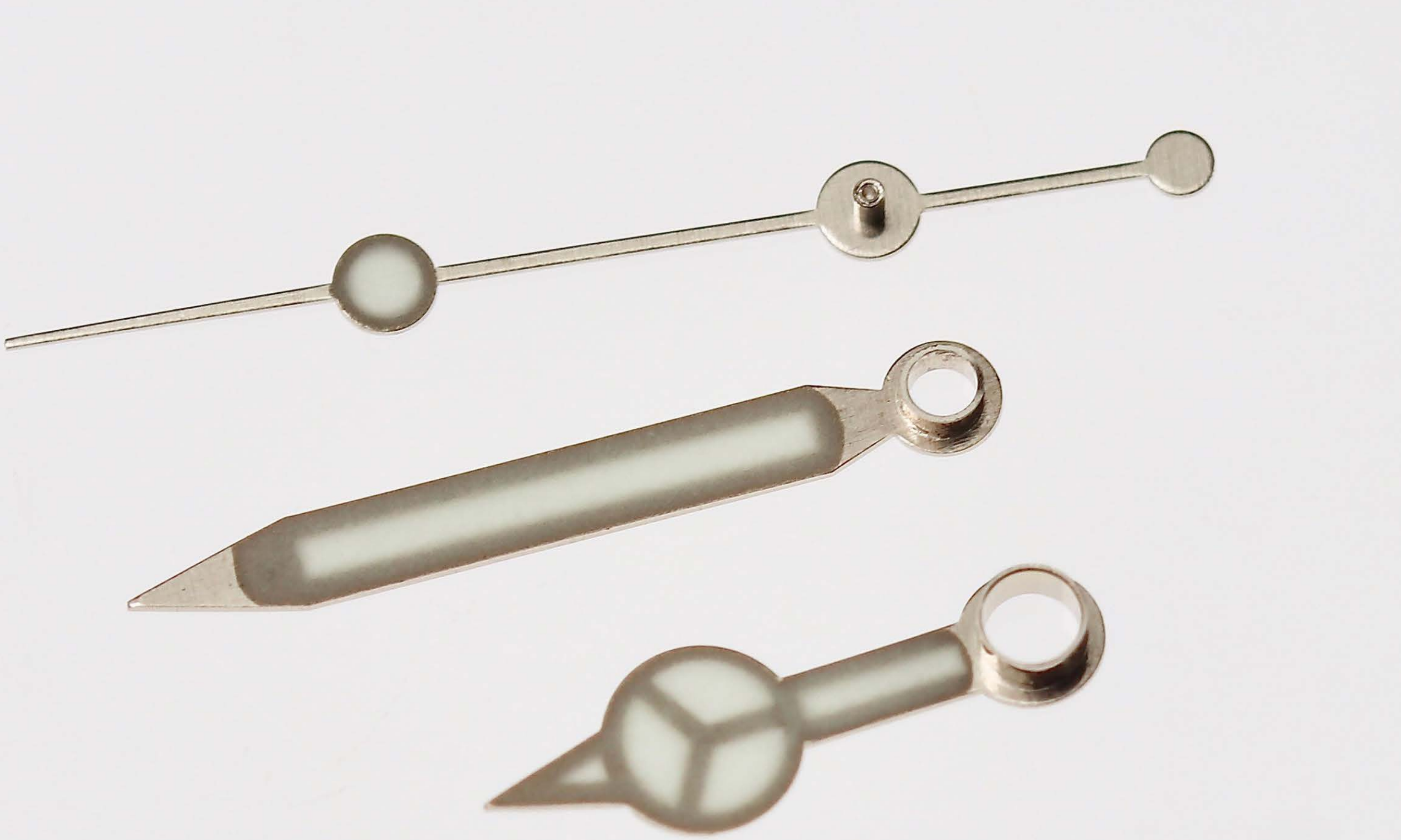
The large pipes on the hands and large distances between them, lends to a strong construction aligned with the role of an active divers/sports watch.

The hands removed from the movement followed by the dial.

The back of the dial. Below left showing a close up of one of the dial feet which at its base, is reduced to a smaller diameter to assure the dial sits flat on the movement. If necessary it can be slightly corrected in its position if not standing perfectly perpendicular to the surface. The indexes are riveted in place by machine as can be seen in the lower right image



The tall hand tubes allow for a solid grip onto the hour wheel, canon pinion and seconds pivot.



The luminescence paint is applied from underneath the hands.

Movement, automatic 3130
Diameter: 28.50
Jewels: 31
Power reserve:4 8 hours
Frequency: 28800

Under the balance guard is a window which allows access for the watchmaker to view the escapement

The adjustable balance cock support nut allowing easy adjustment of the endshake.

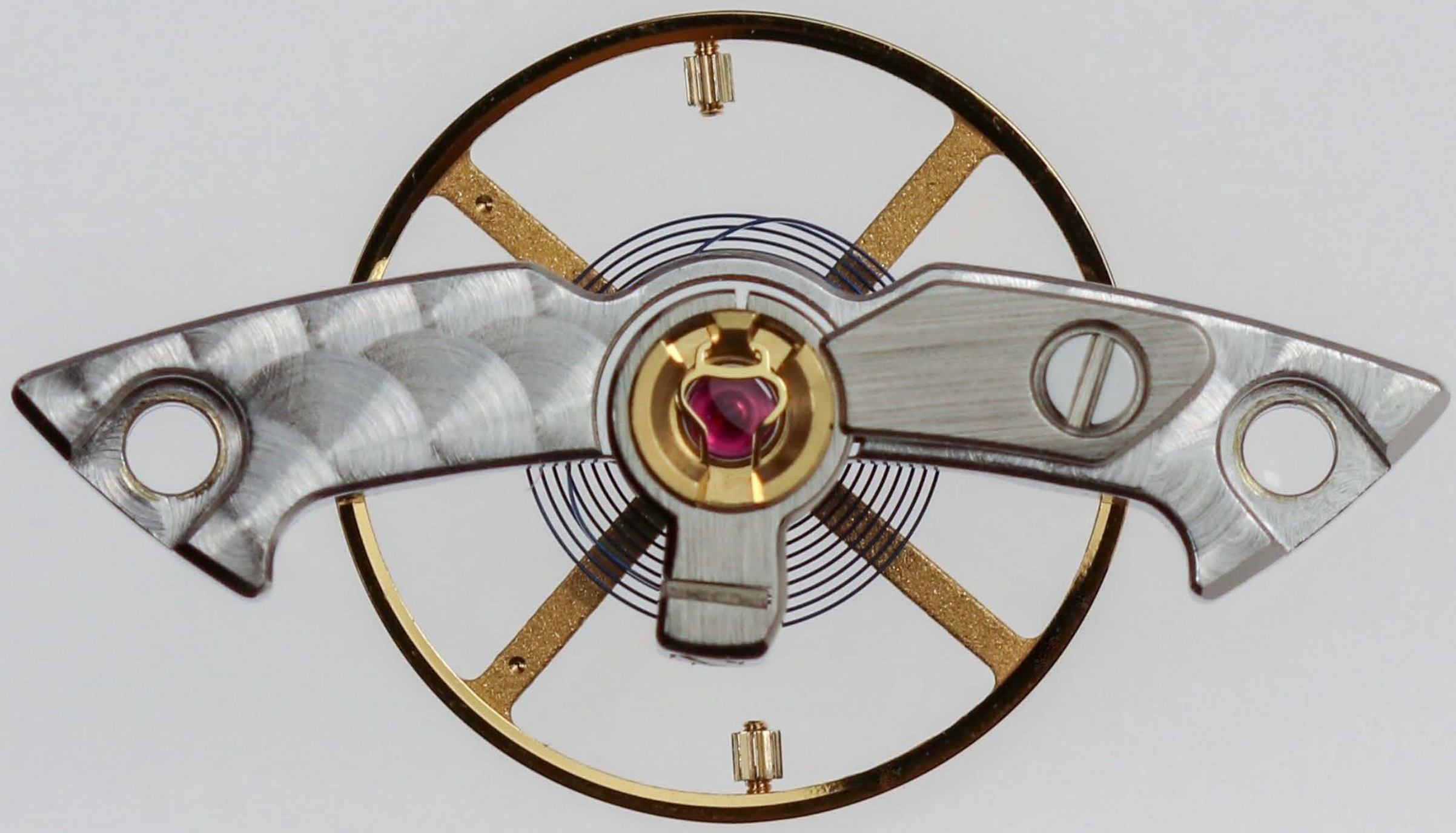
The balance guard to the right of the balance which protects the balance from the rotor weight in case of any impacts which might cause it to flex downwards.

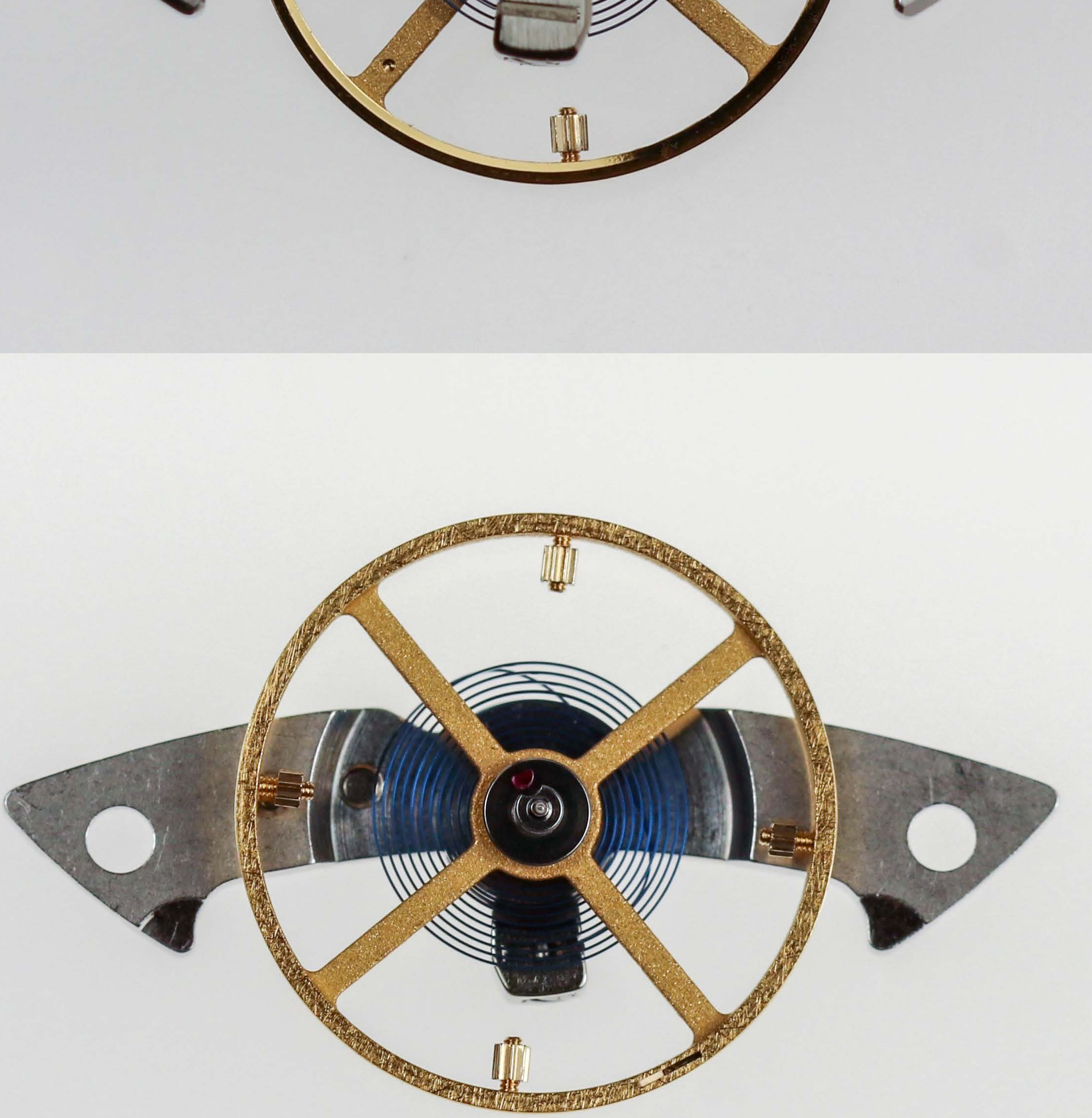
The balance spring clamped into the stud-holder.

The Breguet overcoil balance spring.

The movement with the automatic block removed.

The inner nuts are for the regulation of the watch.

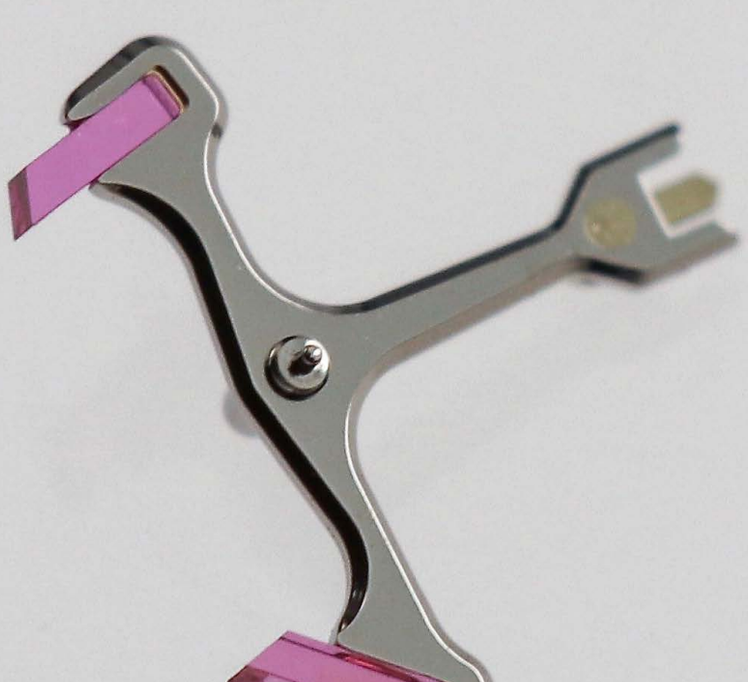




Top and bottom views of the balance and balance bridge assembly.

The balance assembly removed showing the Swiss lever escapement.

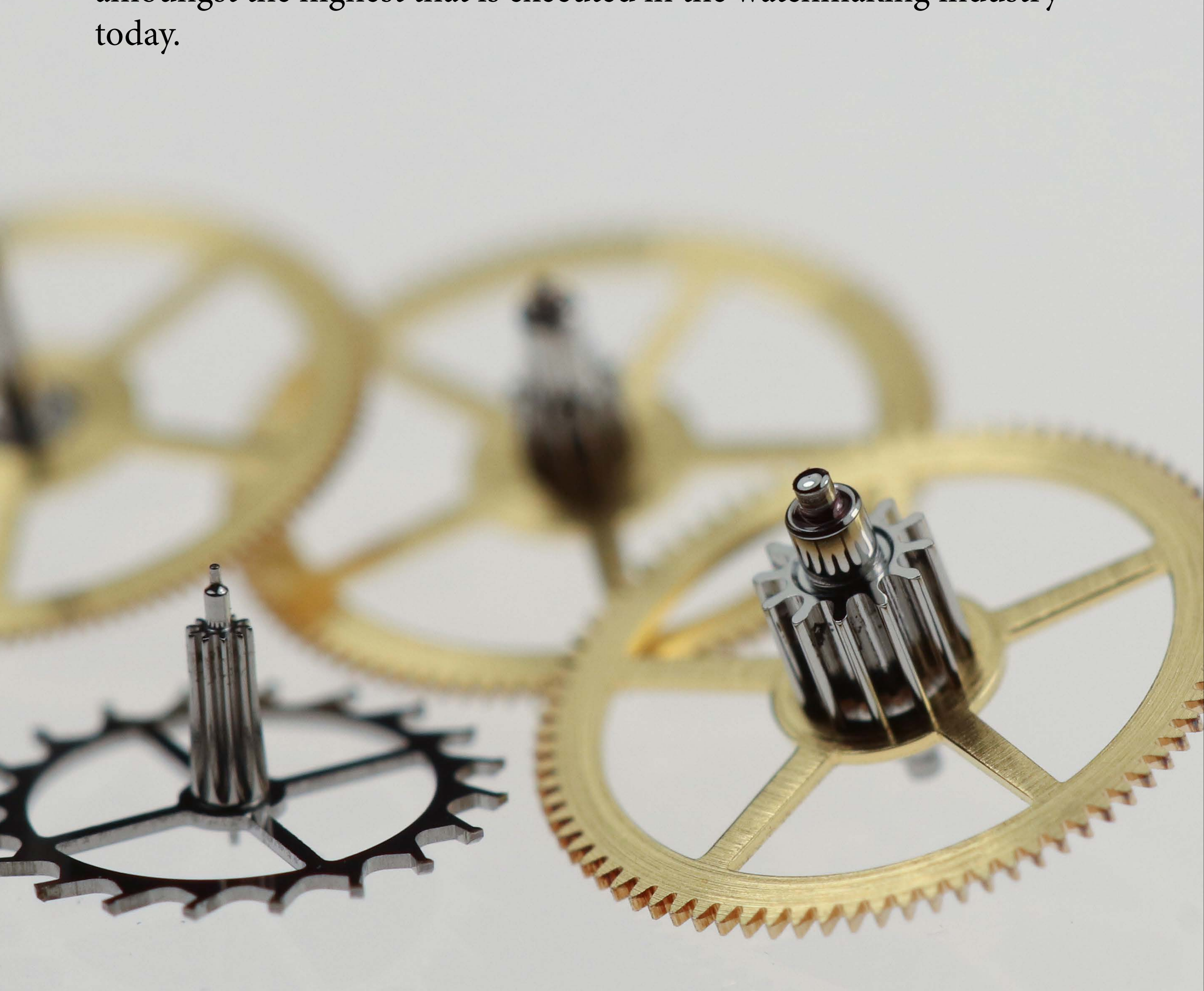
The Swiss lever and cock removed.



The ratchet
wheel removed

The train bridge removed showing the train wheels.

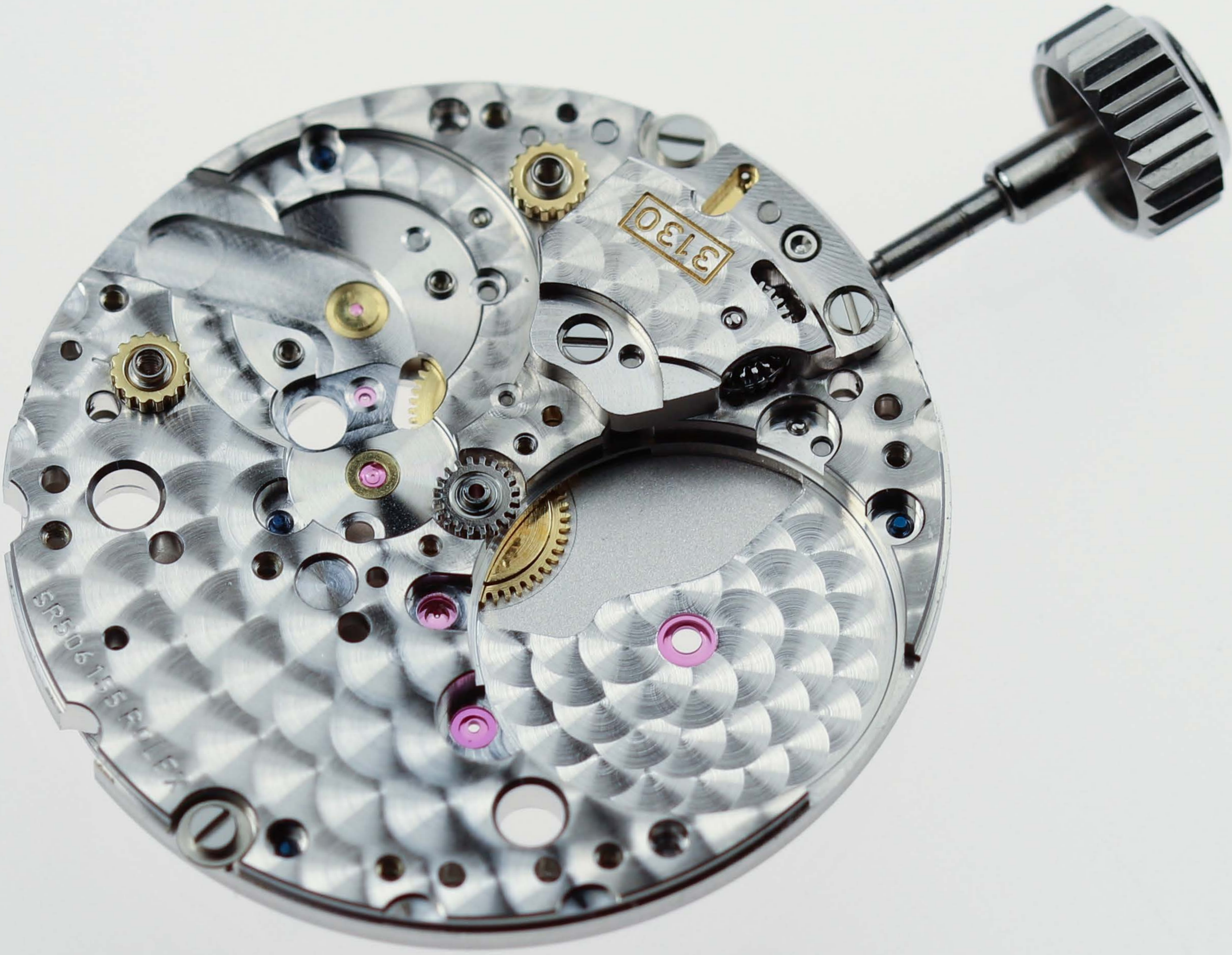
The general uniform and consistent high finish of the pinions is amoungst the highest that is executed in the watchmaking industry today.



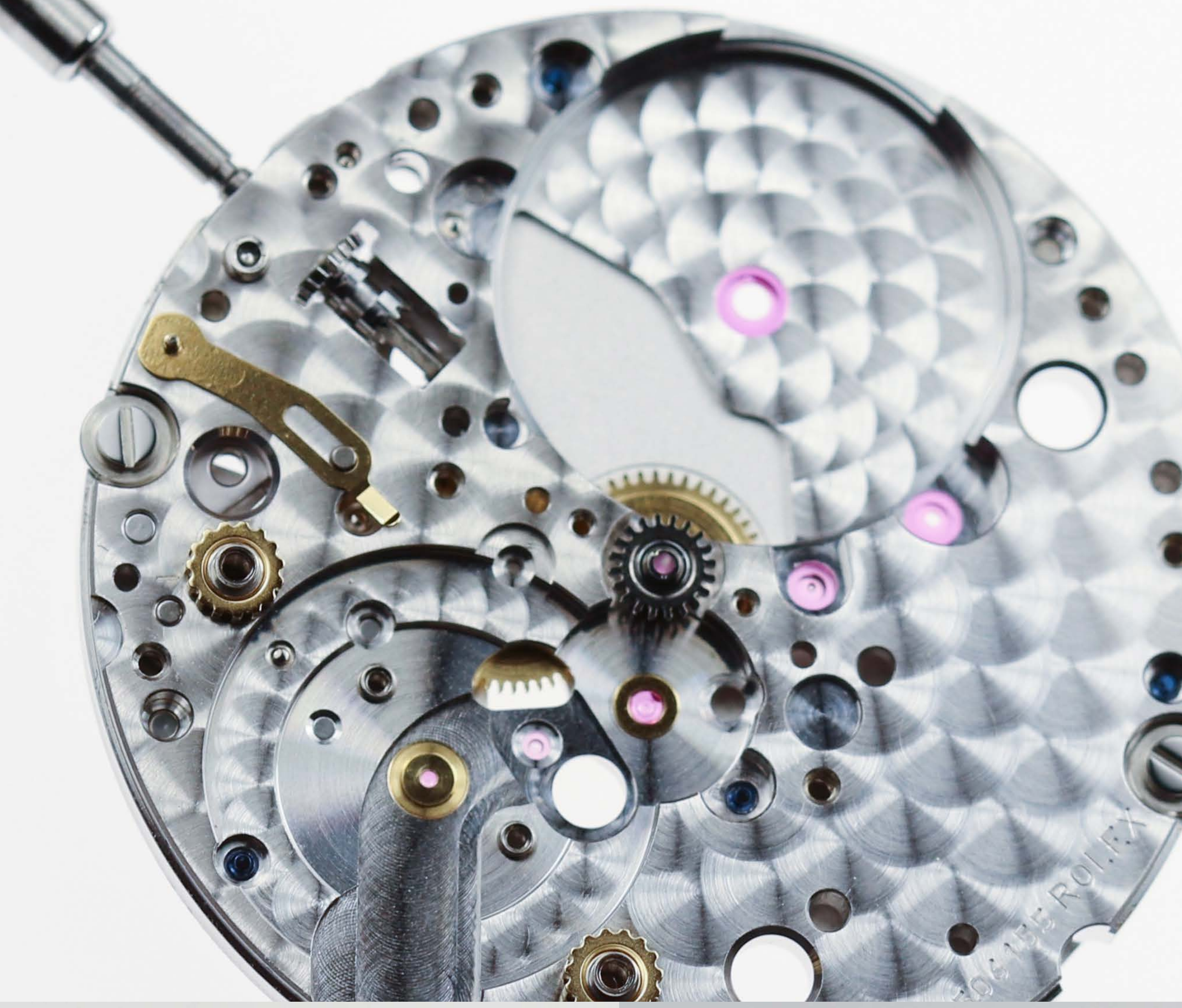
The train wheels removed from the mainplate.

The barrel bridge removed from the movement.

The barrel removed.

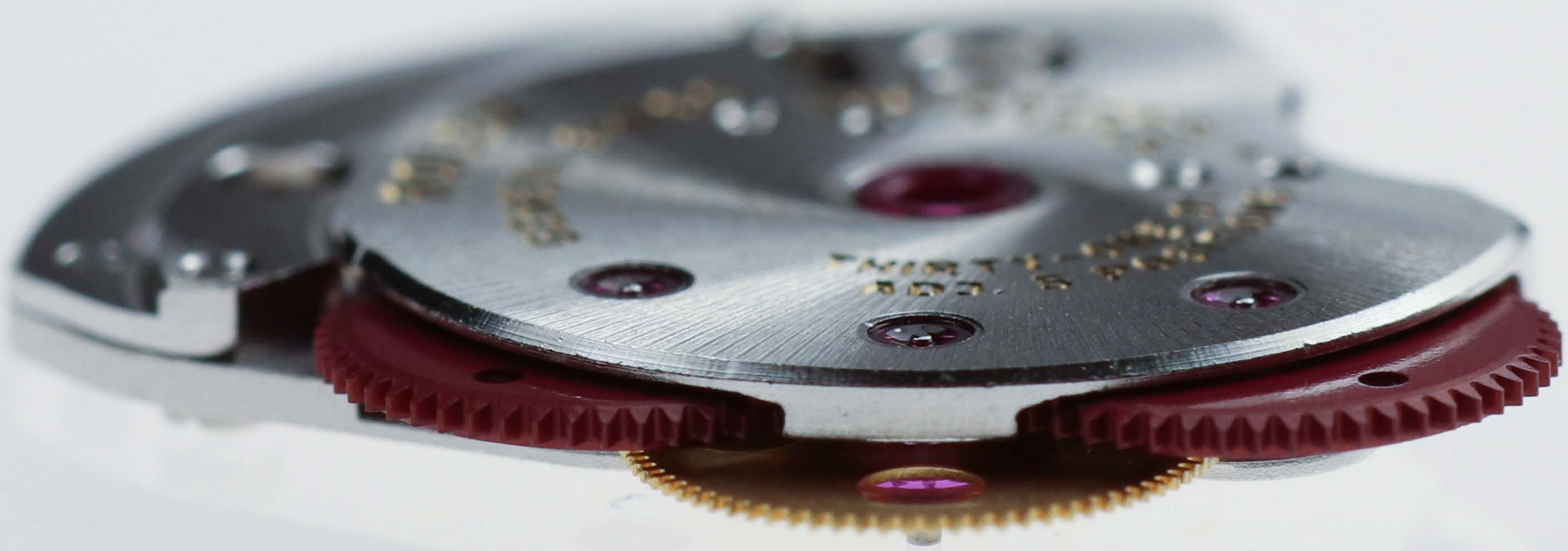


The uppercrown wheel bridge removed and shown seperately below

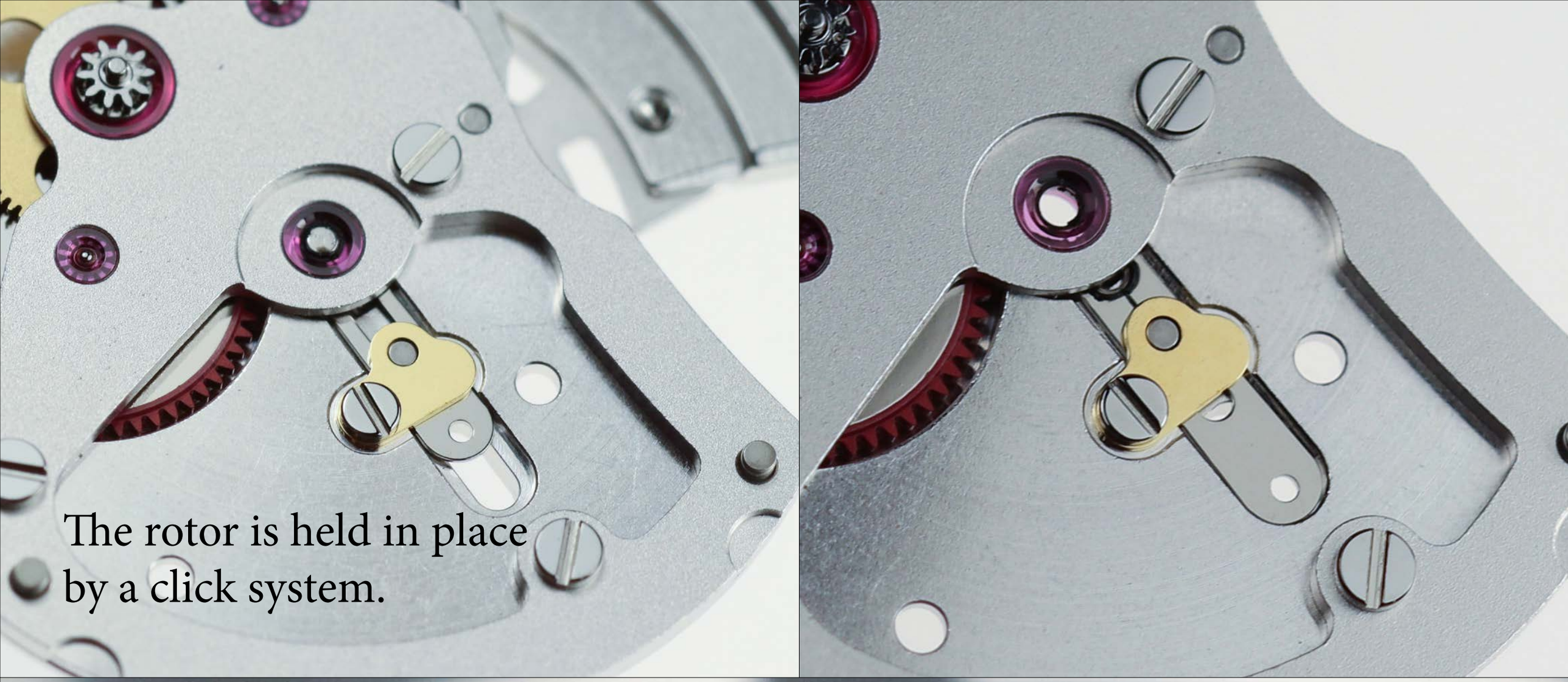


The brake or hack which is linked to the setting mechanism which stops the balance when the stem is pulled into the setting position.

When the movement is dismantelled the entire automatic block and rotor are removed together in a single piece.



The automatic block
with the rotor removed.



The rotor is held in place by a click system.

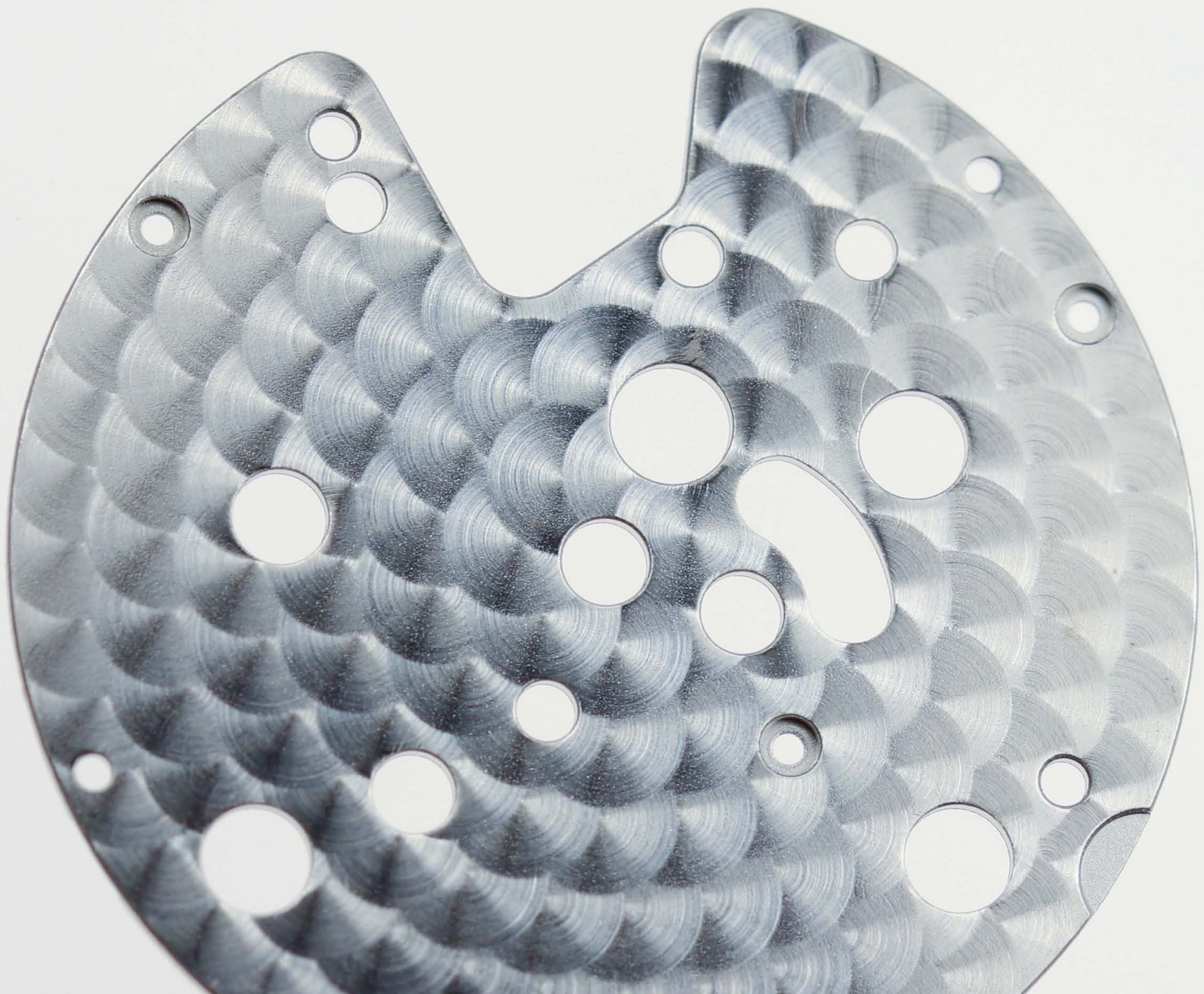
The rotor drives the automatic via this flat-sided rotor axel which drives the pinion below.

The winding wheel which directly meshes with the ratchet wheel to wind the mainspring.

The inner steel wheels only blocking in one direction, slipping in the opposite assuring a fluid bi-directional winding mechanism as the rotor turns.

The steps in the rotor sit clear of each of the levels of the movement optimising the amount of tungsten (heavy metal) that can be added to the rotor. The cut-away sections in the flat are to allow the rotor flexibility to protect the steel axel when the watch receives shocks.

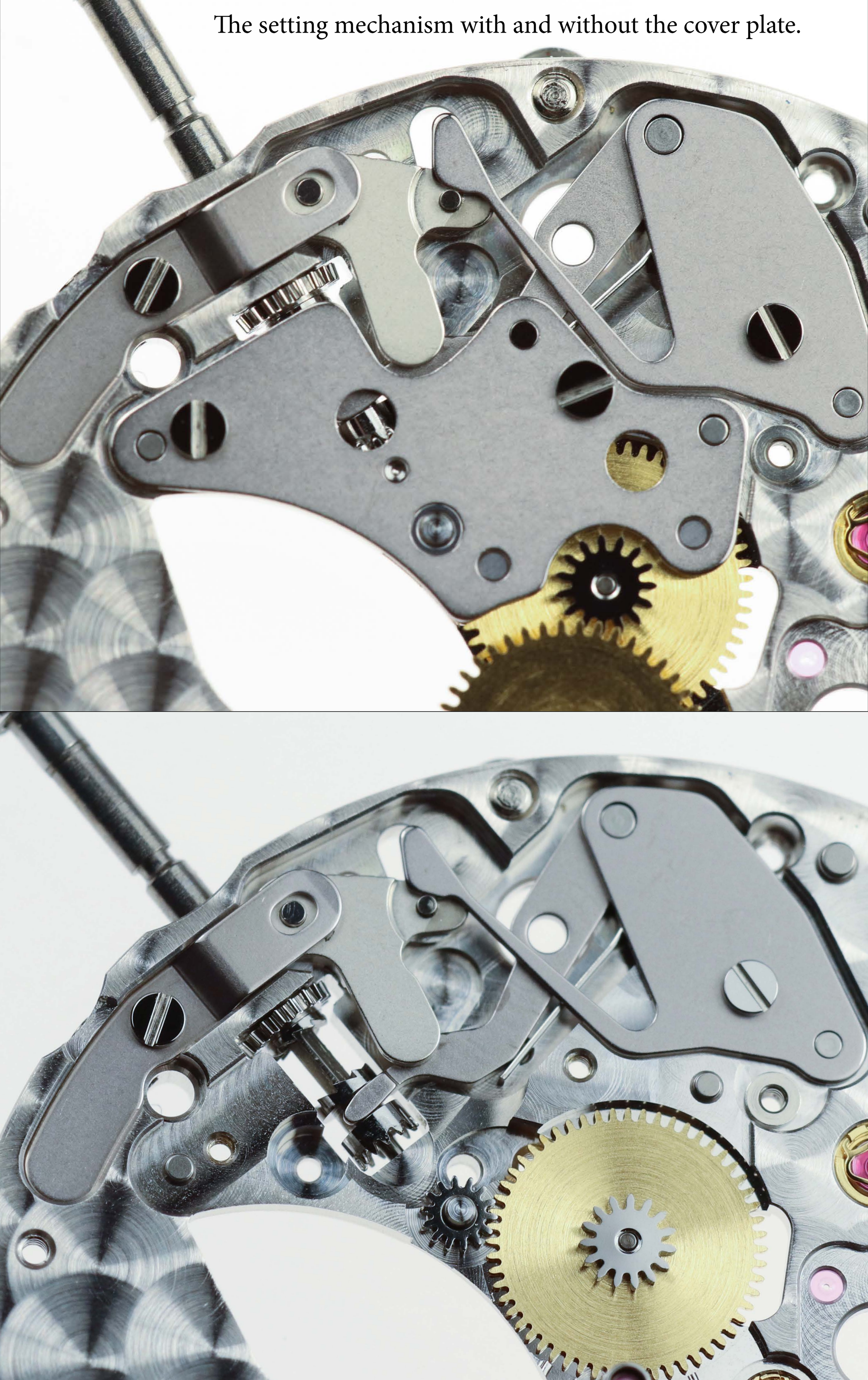
The disc below covers the underside of the mainplate and forms a seat for the dial. It is added to assure the movement sits in the centre of the case when a calendar mechanism is not present.

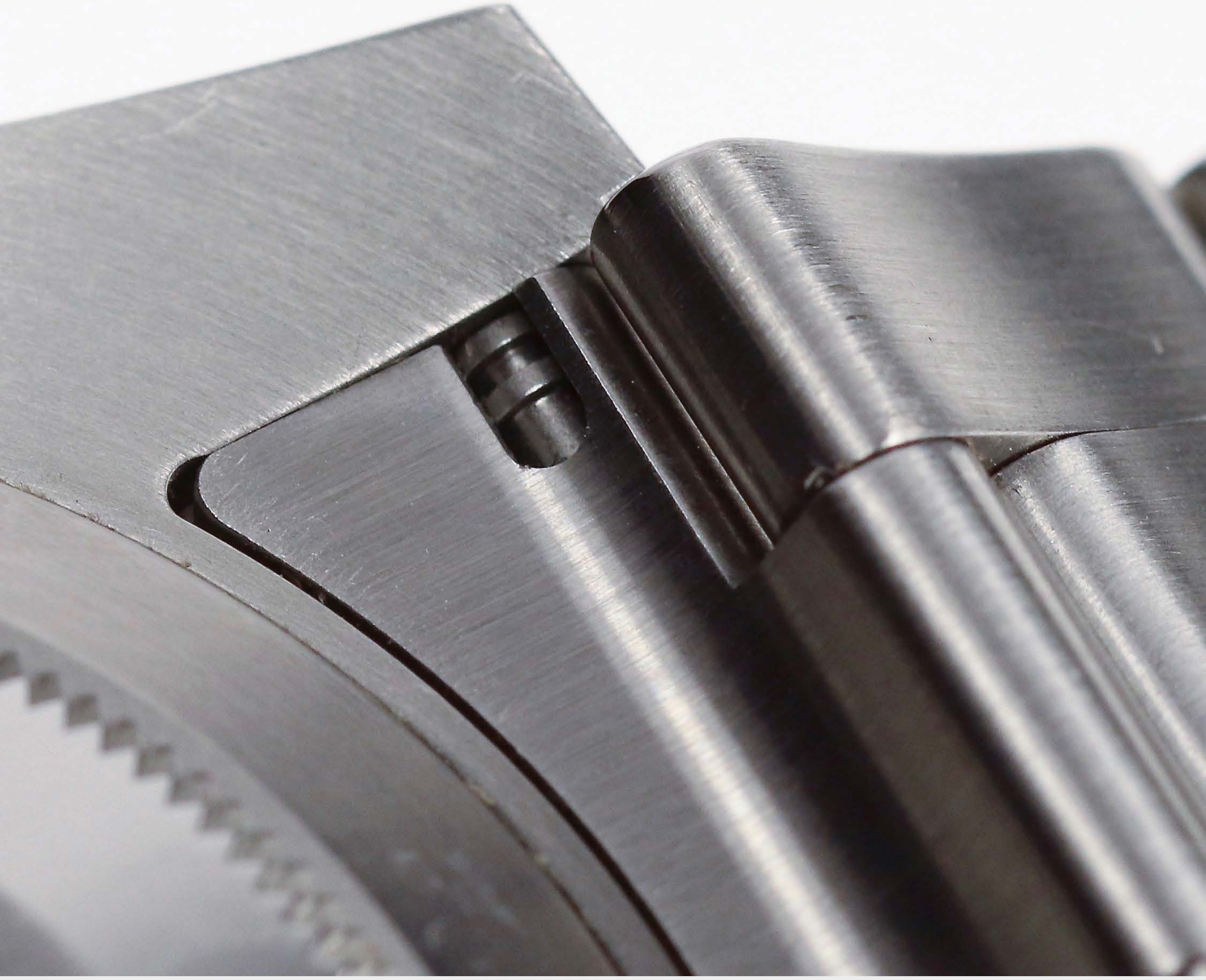


The disc is held on by 4 blued screws and is finished with large diameter pearlage.

The underside of the mainplate with the setting mechanism assembled.

The setting mechanism with and without the cover plate.



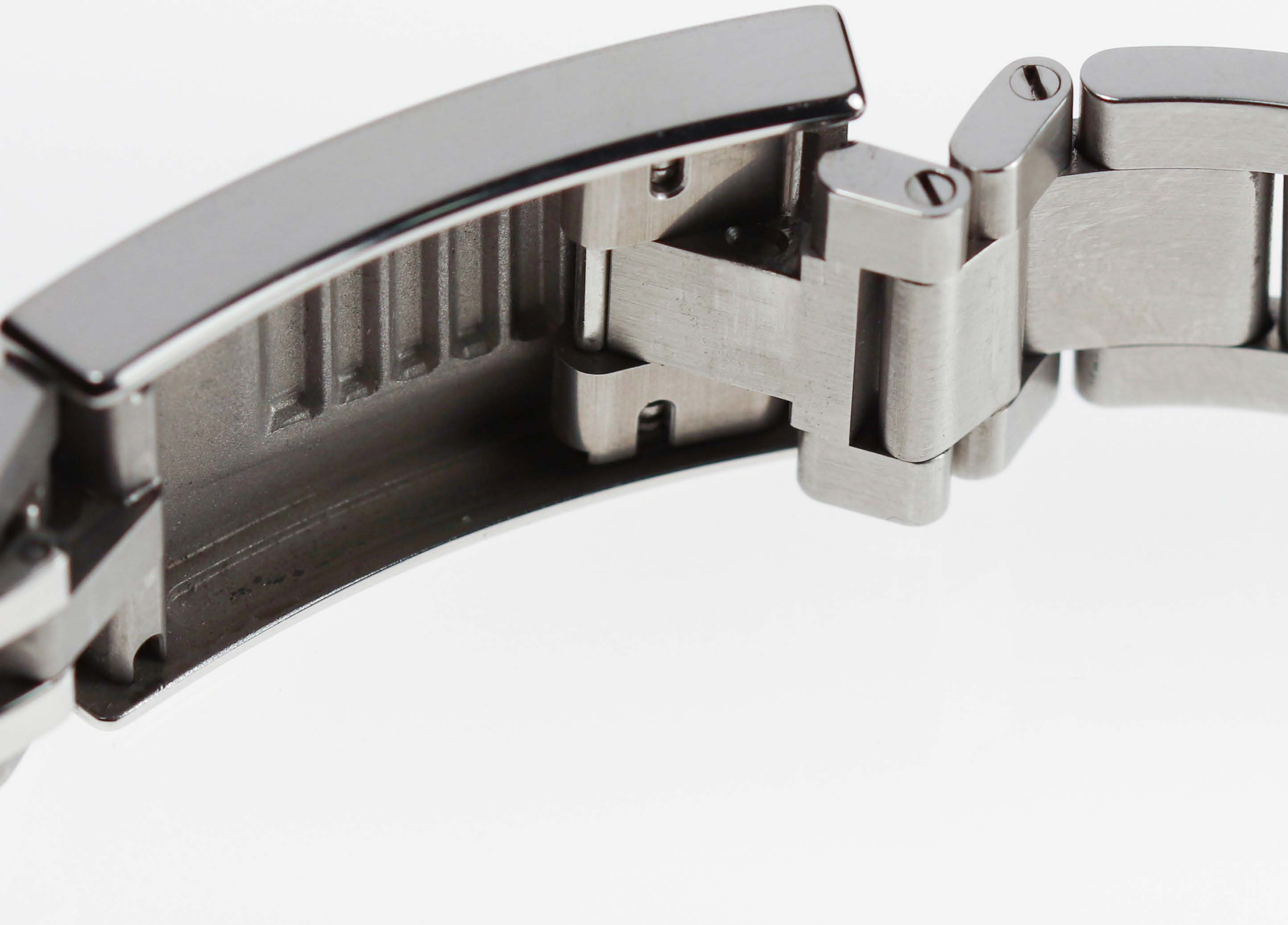


The pin bars accessed through the cut away of the flush fitting section of the bracelet.

The saftey clip partially open on the clasp.

The micro-adjustment built in to the buckle.

The micro-adjustment being regulated.



Above, the brand etching on the inside of the bezel.
Below, a view of the empty case with the ceramic inset into the bezel.

View from the rear of the empty case showing the large round rubber insulating seal.

Summary

During the development of Rolex, there has been an ever constant evolution of the product made. From the movements through to the dials, hands and cases there is a congruent and well thought out logic. Both simple and over-engineered the watches are amongst the finest examples of mass-produced micro-engineering in watchmaking in existence today.

www.thenakedwatchmaker.com